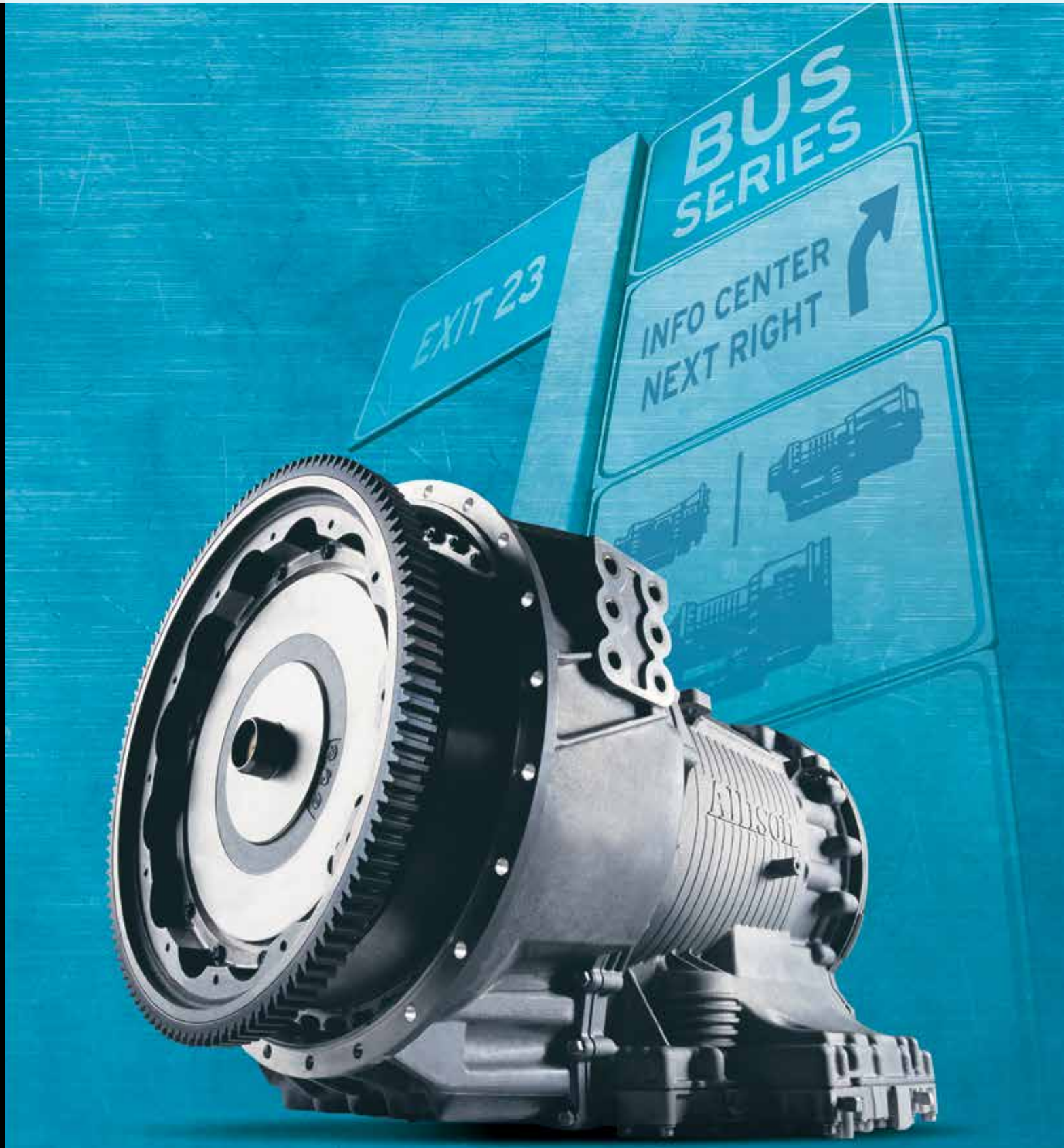
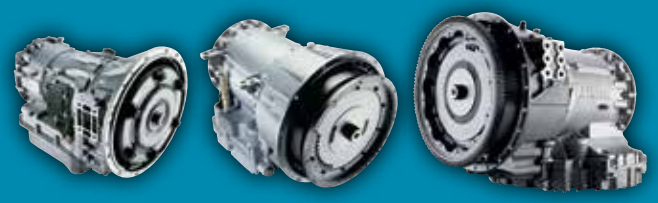
Allison Transmission®



APRIL 2014

Allison Transmission is Optimized. Our commitment to understand and satisfy your needs drives us to constantly analyze, refine and improve our products and their features. Nothing else delivers the durability, productivity and fuel efficiency like an Allison. When it comes to transit and charter bus applications, Allison Bus Series fully automatic transmissions help keep your vehicles and your business on schedule with maximum operating economies, improved vehicle performance and better passenger comfort. If it's not Allison, it's not Optimized.



B 210, B 220 | B 300, B 400 | B 500

Life cycle value. When you factor in all life cycle costs — vehicle purchase price, insurance, fuel, tires, preventive maintenance, component repair, driver wages, taxes, license, permits and retail resale value — along with the increased productivity, an Allison Automatic-equipped vehicle costs less per mile* to operate than a comparable competitively-equipped vehicle.

*Results may vary depending on your operating conditions. See your local authorized Allison Dealer to find the potential productivity gains for your particular business.

Proven reliability and durability. Allison Transmission has built a reputation on our ability to build transmissions that last just about forever. That is why Allison Automatics are the preferred choice for many large, well-known transit and charter bus fleets.

No power interrupts.

On a vehicle with an automated manual transmission, the power interrupts that occur during shift changes result in lower average wheel horsepower. With an Allison Automatic, there is no power interrupt during shift changes so Allison Automatic's can make full use of the engine's horsepower. No power interrupts also contribute to a smoother ride.

Torque converter.

Increased shifting performance, faster acceleration, greater operating flexibility and minimal rollback are all advantages attributed to the patented heavy-duty Allison torque converter. The torque converter's cushion effect reduces shock and strain on all driveline components.

FUELSENSE®

Allison Bus Series models are now available with FuelSense.®

DYNAMIC SHIFT SENSING	Feature that automatically selects between lower and higher speed shift schedules based on the vehicle's weight and the grade on which it's operating.
ECOCAL	A defined set of low and "super" low speed shift schedules designed to keep the engine speed at its optimum point, maintaining necessary performance without shift cycling.
NEUTRAL AT STOP	Feature that reduces or eliminates the load on the engine while the vehicle is stopped, reducing fuel usage and emissions.
ACCELERATION RATE MANAGEMENT	Feature that mitigates aggressive driving practices by automatically controlling engine torque. The intensity of control is determined by the vehicle's weight and grade on which it's operating.
5TH GENERATION ELECTRONIC CONTROLS	To get the most out of every drop of fuel, Allison 5th Generation Electronic Controls offer an enhanced array of smart controls designed to increase fuel economy and fuel efficiency for the specific needs of buses.

Keeping it safe. The driver in an Allison-equipped bus has more time to check the mirrors and to look forward and behind. There simply aren't as many distractions.

Comprehensive coverage.
All Allison Bus Series models offer comprehensive coverage with 100% parts and labor. Coverage may vary by model and application. Contact your Allison representative for details

Maintenance made easy.
Routine oil and filter changes are the only regular preventive maintenance required with an Allison Automatic. An Allison Approved TES 295 transmission fluid greatly extends oil change intervals for most applications.

PROGNOSTICS	Calibrated to the vehicle's particular operating requirements, Allison prognostics monitor various operating parameters to determine and alert when service is due. This eliminates unnecessary oil and filter changes and provides maximum transmission protection.
INCREASED LOCKUP AVAILABILITY	B 300 and B 400 models equipped with this feature are able to shift into lockup in 1st range, and lockup stays on through 1st to 2nd shift. The transmission's electronic controls monitor acceleration to determine when to activate lockup. APPLICATION ENGINEERING REVIEW IS REQUIRED FOR THIS FEATURE.
RETARDER ENABLE	Allison's electronic controls precisely blend the transmission with the ABS-compatible, integral retarder and the vehicle's service brakes to provide peak braking efficiency.
SECONDARY SHIFT SCHEDULE	Allows driver to select between two pre-programmed shift patterns, quickly and easily, to match driving conditions.
DIRECTION CHANGE ENABLE	Prohibits shifts from Neutral to Drive or Reverse without first pressing a dash switch or applying the service brakes.
AUXILIARY FUNCTION RANGE INHIBIT	Will not allow transmission to shift into forward or reverse unless the service brakes are applied.

Ratings and Specifications

RATINGS

MODEL	RATIO	PARK PAWL	MAX INPUT POWER[1] w/o SEM hp (kW)	MAX INPUT TORQUE[1] w/o SEM lb-ft (N • m)	MAX INPUT POWER w/SEM or TORQUE LIMITING[1,2] hp (kW)	MAX INPUT TORQUE w/SEM or TORQUE LIMITING[1,2] lb-ft (N • m)	MAX TURBINE TORQUE[3] lb-ft (N • m)	MAX GVW lbs (kg)	MAX GCW lbs (kg)
B 210									
– Transit	Close Ratio	No	230 (172)	520 (705)	270[4] (201)[4]	575[4] (780)[4]	850 (1152)	29,000 (13,150)	29,000 (13,150)
B 220									
– Transit	Close Ratio	Yes	230 (172)	520 (705)	270[4] (201)[4]	575[4] (780)[4]	850 (1152)	29,000 (13,150)	29,000 (13,150)
B 300									
– Transit	Close Ratio	n/a	280 (209)	735 (997)	n/a	n/a	1370 (1857)	38,000 (17,236)	38,000 (17,236)
B 400									
– Transit	Close Ratio	n/a	300 (224)	925 (1254)	n/a	n/a	1370 (1857)	45,000 (20,412)	45,000 (20,412)
– Tour Coach	Close Ratio	n/a	330 (246)	1000 (1356)	n/a	n/a	1600 (2170)	45,000 (20,412)	45,000 (20,412)
B 500									
– Transit	Close Ratio	n/a	420 (313)	1300 (1763)	n/a	n/a	2450 (3322)	–	–
– Intercity Coach	Close Ratio	n/a	550 (410)	1700 (2305)	n/a	n/a	2450 (3322)	–	–

1 Gross ratings as defined by ISO 1585 or SAE J1995. 2 SEM = engine controls with Shift Energy Management. 3 Turbine torque limit based on iSCAAN standard deductions. 4 With SEM available 2010.

GEAR RATIOS – TORQUE CONVERTER MULTIPLICATION NOT INCLUDED

MODEL	FIRST	SECOND	THIRD	FOURTH	FIFTH	SIXTH	SEVENTH	REVERSE
B 210	3.10:1	1.81:1	1.41:1	1.00:1	0.71:1	0.61:1	–	-4.49:1
B 220	3.10:1	1.81:1	1.41:1	1.00:1	0.71:1	0.61:1	–	-4.49:1
B 300	3.49:1	1.86:1	1.41:1	1.00:1	0.75:1	0.65:1	–	-5.03:1
B 400	3.49:1	1.86:1	1.41:1	1.00:1	0.75:1	0.65:1	–	-5.03:1
B 500	3.51:1	1.91:1	1.43:1	1.00:1	0.74:1	0.64:1	–	-4.80:1

ENGINE SPEEDS

MODEL	FULL LOAD GOVERNED SPEED Min-Max (rpm)	IDLE SPEED IN DRIVE Min-Max (rpm)	OUTPUT SHAFT SPEED rpm
B 210/220	2200-3200	500-820	4500
B 300/400	1950-2800	500-800	3600[1]
B 500	1700-2300	500-800	–

1 Retarder-equipped models only.

OPTIONAL RETARDER PROVISION – INTEGRAL, HYDRAULIC TYPE

MODEL	TORQUE CAPACITY lb-ft (N • m)	POWER CAPACITY hp (kW)
B 300/400		
– High	1600 (2170)	600 (447)
– Medium	1300 (1760)	500 (373)
– Low	1100 (1490)	400 (298)
B 500		
– High	2000 (2710)	600 (447)
– Medium	1600 (2170)	600 (447)
– Low	1300 (1760)	500 (373)

TORQUE CONVERTER SPECIFICATIONS

MODEL	TORQUE CONVERTER	NOMINAL STALL TORQUE
B 210/220	TC-210	2.05
	TC-211	1.91
	TC-221	1.73
	TC-222	1.58
B 300/400	TC-411	2.71
	TC-413	2.44
	TC-415	2.35
	TC-417	2.20
	TC-418	1.98
	TC-419	2.02
	TC-421	1.77
B 500	TC-521	2.42
	TC-531	2.34
	TC-541	1.90
	TC-551	1.79
	TC-561	1.58

STANDARD POWER TAKEOFF PROVISION – CONTINUOUS OPERATION

MODEL	MOUNTING PAD POSITIONS VIEWED FROM REAR	DRIVE GEAR RATING WITH ONE PTO lb-ft (N • m)	DRIVE GEAR RATING WITH TWO PTOS lb-ft (N • m)	DRIVE
B 210[1]	3 and 9 o'clock	250 (339)	200[2] (271)[2]	Turbine
B 220[1]	3 and 9 o'clock	250 (339)	200[2] (271)[2]	Turbine
B 300[1]	4 and 8 o'clock	485 (660)	685[3] (930)[3]	Engine
B 400[1]	4 and 8 o'clock	485 (660)	685[3] (930)[3]	Engine
B 500[1]	1 and 8 o'clock	685 (930)	1175 (1595)	Engine

1 PTO-delete option available. 2 Rating per PTO. 3 Total on the drive gear.

PHYSICAL DESCRIPTION

MODEL	LENGTH[1] in (mm)	DEPTH[2] W/DEEP OIL PAN/SUMP in (mm)	DEPTH[2] W/SHALLOW OIL PAN/SUMP in (mm)	DRY WEIGHT lbs (kg)
B 210/220				
– SAE No. 3 mounting	28.01 (711.4)	11.22 (284.9)	–	330 (150)
– SAE No. 2 mounting	28.39 (721.1)	11.22 (284.9)	–	330 (150)
B 300/400				
– Basic model	28.29 (718.6)	12.90 (327.8)	11.14 (283.1)	535 (243)
– With PTO only	32.49 (825.4)	12.90 (327.8)	11.14 (283.1)	575 (261)
– With retarder only	28.29 (718.6)	12.90 (327.8)	11.14 (283.1)	615 (279)
– With PTO & retarder	32.49 (825.4)	12.90 (327.8)	11.14 (283.1)	655 (297)
B 500				
– Basic model	30.54 (775.8)	14.75 (374.7)	13.17 (334.6)	831 (377)
– With PTO only	33.42 (848.8)	14.75 (374.7)	13.17 (334.6)	893 (405)
– With retarder only	30.54 (775.8)	14.75 (374.7)	13.17 (334.6)	906 (411)
– With PTO & retarder	33.42 (848.8)	14.75 (374.7)	13.17 (334.6)	968 (439)

1 Length measured from flywheel housing to end of output shaft. 2 Depth measured below transmission centerline.

OIL SYSTEM

MODEL	CAPACITY[1] quarts (liters)	MAIN CIRCUIT FILTER	LUBE CIRCUIT FILTER	ELECTRONIC OIL LEVEL SENSOR (OLS)
B 210/220		Spin-On Canister	–	–
– Standard Oil Sump	14.8[2] (14)[2]			
B 300/400		Integral	Integral	Standard
– Deep Oil Sump w/o PTO	29[2] (27.4)[2]			
– Shallow Oil Sump w/o PTO	26[2] (24.6)[2]			
B 500		Integral	Integral	Standard
– Deep Oil Sump and PTO	51[2] (48)[2]			
– Deep Oil Sump	48[2] (45)[2]			
– Shallow Oil Sump and PTO	43[2] (41)[2]			
– Shallow Oil Sump	40[2] (38)[2]			

Recommended oil types for all models are Allison Approved TES 295 transmission fluid.

1 Transmission only. Does not include cooler, hoses or fittings. 2 Amount of oil necessary to fill a dry transmission.

ALLISON BRAND PROMISE

The Allison Brand Promise is the automatic experience with an unrivaled combination of Quality, Reliability, Durability, Vocational Value, and Customer Service.

P.O. Box 894, Speed Code PF3
Indianapolis, Indiana 46206-0894

Information or specifications subject to change without notice or obligation.

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